

*265-9242*  
*265-9242*  
No. Unnumbered.



AMERICAN CONSULATE,

CATANIA, ITALY. Oct. 25, 1911.

INDEX BUREAU  
265-9242

SUBJECT:

Transmitting Report on  
Eruption of Mt. Aetna.



FILED  
NOV 24 1

*Sent to Bur # 80991. A 2. Nov. 15 1911*

THE HONORABLE,

BUREAU OF TRADE RELATIONS

NOV 16 1911  
THE SECRETARY OF STATE,  
ACKNOWLEDGED.

*Fier - Ca.*

WASHINGTON, D. C.

SIR:

I have the honor to transmit herewith  
a Report in duplicate on the Eruption of Mt. Aetna.

I have the honor to be,

Sir,

Your obedient servant,

*Arthur Garrels*

American Consul.

Enclosures:

Catania.

As stated.

# R E P O R T

## Eruption of Aetna

by

Arthur Garrels, American Consul, Catania, Italy.

\*\*\*\*\*

On September 10, 1911, at 1.30 o'clock in the morning an eruption broke out on the north-east side of Mt. Aetna about three miles from the main crater. The emissions were from some 80 openings extending along the line of a fissure in the surface for about  $2/3$  of a mile. Only four of these openings developed into lava emitting craters. The emissions of the others were confined to powdered ashes and smoke. The lava from the four craters formed one stream which flowed in a north-easterly direction, and covered some 11 miles in its course. The stream at its head averaged a half mile in breadth and 40 to 50 feet in height. During the first two days the lava flowed at the rate of 550 to 700 feet per hour, which is faster than any previous recorded lava flow on Aetna. While there was a good force behind the stream its unusual acceleration may be attributed principally to the sharp decline of the surface in the immediate vicinity of the craters. After the first two days the speed of the flow diminished to an average of 150 feet per hour. The eruption of lava ceased on September 28, 1911.

There was no loss of life; the entire damage to property and crops is estimated at from 12 to 15 million Lire. (\$2,316,000. to \$2,895,000.)

*Arthur Garrels*

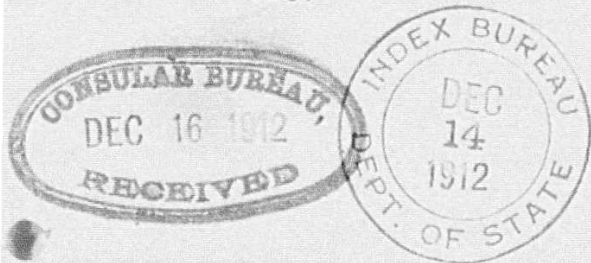
American Consul.  
Catania.

October 25, 1911.

Catania, Italy.



No. ---



AMERICAN CONSULATE,

Naples, Italy, November 26, 1912.

SUBJECT: REPORTING THE RECENT GREAT ERUPTION OF THE  
VOLCANO STROMBOLI.

*Orig. inc. to  
Smithsonian  
As. Dec. 30, 1912  
Fki-ba.*

865.9242/1

THE HONORABLE

THE SECRETARY OF STATE,

WASHINGTON.

SIR:

FILED  
DEC 31 1912

I have the honor and the pleasure to transmit herewith, in duplicate, an interesting and illustrated report on the recent great eruption of the volcano on the island of Stromboli, Italy, by Mr. Frank A. Perret, Volcanologist to the Volcanic Research Society of Springfield, Mass.

Mr. Perret is an American Citizen from the State of New York, and has resided in Naples for several years making a special study of the eruptions of the volcanos "Vesuvius," "Etna," and "Stromboli," and is in a position to write as an authority on this important subject.

He has not only written the report at my request but has furnished me with seventeen photographs, illustrating the event, taken by himself, and three pamphlets  
(enclosures

enclosures Nos. 1 to 3) treating of the subject, all of which I hope will be of interest both to the Department and our scientific societies who are interested in these remarkable volcanic eruptions.

I have the honor to be, Sir,

Your obedient servant,

*Wm H. Audley*  
Consul.

Enclosures:

- No. 1.--Bulletin of Brooklyn Institute of Arts and Sciences.
- No. 2.--Volcanic Vortex Rings, etc.
- No. 3.--The Flashing Arcs.
- No. 4.--Report in Duplicate.



REPORT ON THE RECENT GREAT ERUPTION OF THE VOLCANO  
"STROMBOLI".

To the American Consul,  
Naples, Italy.

Dear Mr. Handley:

I have the honor to present, as you requested, the following report on the recent remarkable eruption of Stromboli, and particularly for the following reasons:-

1. This eruption—together with the last one in 1907 differs so greatly from the characteristic activity of Stromboli as to mark a new era in the volcano's eruptive habit.
2. The eruption, although certainly the greatest in many years and imperilling the lives of the five thousand inhabitants of the island, passed almost unnoticed by the Press.
3. The writer, as well in 1907 as in the present year, was the only observer. The Italian volcanologists, in both cases, visited the island only after the close of the eruption.

Stromboli, at the north-east extremity of the Lipari group of Islands, north of Sicily, appears as a small volcanic cone rising but 925 metres (1011 feet) above the sea. It should be remembered, however, that what is seen is but the summit of a submarine mountain of great size and height. Its general form is shown in Photo No. 1, the principal characteristics being a divided and crested summit, an eccentric crater situated nearly 200 metres below the summit, a steep slope (35°) descending directly from the crater to the sea (the so-called "Sciarra del Fuoco"), and two plateaux on opposite sides of the island from the crater which form the inhabited and only habitable points.

The crater is thus invisible to the inhabitants and,  
while

while this undoubtedly contributes to their security and tranquility, it is often, nevertheless, the cause of their ignorance of the volcano's condition especially as regards the preparatory symptoms of an eruption. The old Semaphore Station on Punta Labronzo was well placed for observation but was abandoned after the Calabrian earthquake of 1905 by which it was badly damaged. The new station above the town of San Vincenzo is not in sight of the crater.

During the present generation the normal activity of this volcano has, until the events herein described, consisted of a moderate but almost continuous form of eruption with jets, at frequent intervals, of incandescent fragments of lava yielding an illumination so regular and brilliant as to have earned for Stromboli the title of "Lighthouse of the Mediterranean." There was no crater, properly so called, but a shallow depression where a crater should have been--i.e., undoubtedly a filled-up former crater--with a number of small eruptive mouths generally arranged along the edge of the depression towards the sea. It will be seen that I do not claim that the present great crater, as described below, is a new thing in the life of the volcano, but that it is new to the present generation.

In the Spring of 1907 the normal activity was broken by an eruption of great violence which threw the inhabitants into a state of panic. The explosions were <sup>so</sup> sharp that the air concussion broke nearly every window on the island. The lava was thrown out in large masses so hot as to retain its plasticity and be conformed to the surface upon which the mass fell, as shown in Photo No. 2. The eruption lasted several weeks and produced a true  
crater



crater 200 metres in diameter and the eruptive mouths, with no exception, were sunk to the bottom of this abyss..

That they still existed and acted as separate mouths was proven by the varied character of the explosions and the different time intervals. There was also a most interesting rhythmic change from a type of explosion with the lava high in the conduit and in free contact with the atmosphere, when the cloud of ejected materials consisted of incandescent lava fragments (bombs) and clear vapors, to the opposite type of dense black volutes of ash from the collapsed wall material as the lava column sank below its former level. The difference between the two forms of explosion—known technically as "Strombolian and Vulcanian"—was even more clearly defined in the eruption of 1912 and is clearly shown by comparison in Photos Nos. 3 and 4. A considerable emission of ash having a strongly acid reaction ruined the grape crop for that year (1907) and the unfortunate inhabitants besought the government—through the local Municipal Delegate Sig. Famularo—to send ships in case it seemed necessary to abandon the island. A cruiser—the "Piemonte"—and several destroyers were sent and it fell to me to assume the grave responsibility of assuring Commander Presbitero that the culmination of the eruption was passed and that, although some minor revivals of activity were to be expected, there was no further cause for alarm. Upon the strength of this he received permission from the government to withdraw his ships.

A brief account of this eruption was published in the Bulletin of the Brooklyn Institute of Arts and Science

a copy of which is herewith presented.

This eruption of 1907 left, as I have stated, a deep crater 200 metres in diameter and was followed by a long period of almost complete repose, this constituting quite a radical change from the foregoing habit of Stromboli and imitating the *modus operandi* of other volcanoes, such as Vesuvius and Etna. During this period not the least glimmer of light was to be seen at the crater and when I again visited the volcano in 1909 it was still in a state of quiescence. In this connection a fact of general interest may be mentioned. Some years previous to this time a project was on foot to erect a lighthouse upon "Strombolicchio". This is a monolith of lava (Photo No 5) rising fifty meters above the sea at a short distance from the island. In my opinion it is a volcanic "neck" i. e., the solidified lava which existed in the conduit of a small volcano formerly active on this spot, the cone of which--formed of fragmenting materials--has been destroyed by centuries of weathering, leaving the solid cone as a monument to its former existence. A flight of steps was cut from the sea level to the top and the top itself was levelled, but the project was abandoned, as I am informed, precisely because the illumination from Stromboli formed a better lighthouse than any which could be constructed by man. Upon the failure of the volcano a light was needed and a lighthouse is now to be erected upon Strombolicchio.

The eruption of July-August 1912 was, on the whole, greater than its predecessor and was ~~initiated~~ initiated by a continuous series of violent local earthquake shocks. These

undoubtedly



undoubtedly were due to a conduit partly obstructed by lava which had consolidated therein. This was ejected in solidified form—as contra-distinguished from that of 1907—in irregular blocks of all sizes up to two meters in diameter. One of these, shown in Photo N° 6, fell 500 meters distant from the crater. The rock is a compact, basaltic lava containing a considerable proportion of olivine.

Besides this rock the chief product of this eruption was the enormous quantity (for Stromboli) of ash. This reached a depth of over two meters on the upper parts of the mountain as shown by the photograph (N°7) of a stone shelter built near the summit to shelter observers of the target practise of the fleet. In the towns, the flat roofs were covered to a depth of 6 to 8 centimetres and, in contrast to that of 1907, this ash was alkaline but no less fatal to green vegetation. As long as the fallen ash remains dry it is harmless and a heavy rain is innocuous as it washes the ash from the leaves, but if the ash on the leaf is moistened by the dew or a few drops of rain the soluble materials are extracted and attack the leaf, generally affecting one or more sectors as shown in Photo N° 8.

From the standpoint of the volcanologist, the most interesting feature of this ash is the fact that it is constituted almost entirely of new material, i, e, it was formed directly from liquid lava by intermolecular gaseous expansion and not by the crushing of old rocks nor by the collapse of crater walls. This forms a striking example of the process of ash making as described in a paper by

the

the present writer entitled: "Volcanic Vortex Rings and the direct formation of Ash from Liquid lava" and which appears in the November issue of the American Journal of Science. During this eruption the explosions, although very powerful, were not sufficiently sharp to produce the phenomenon of the "Flashing Arcs" as observed by me at Vesuvius (1906) and Etna (1910) and described in the American Journal of Science (Reprint herewith enclosed)

In addition to the solid blocks and the ash a very large quantity of porous, vitreous scoriae or "lapilli" were ejected. These were of the same material as the ash and containing, in some cases, inclusions of already formed crystals of Angite. In falling, they were still plastic to the extent of conforming to the ~~w~~orked branches of the Genesta plants and even to ~~b~~ae impaled upon the spines (See Photo. No. 9.)

This eruption was very instructive. A careful study was made of the great "mushroom vortices" (see Photo No. 10.) by whose mechanism heavy rocks are carried to a great height and then thrown to a distance by the vortex whirl.

Some idea of the crater--300 meters in diameter-- of this eruption may be had from Photo No. 11.

On several occasions, including the present one, the writer has been completely enveloped, for fifteen or more minutes at a time, in the cloud of gas and ash proceeding directly from the crater of a volcano during a paroxysmal eruption. In every case there was no noxious gas--no HCL, SO<sub>2</sub>, H<sub>2</sub>S, CO<sub>2</sub>- in perceptible amount, although these are present in distressing quantities during phases of minor activity. The conclusion is inevitable that the paroxysmal gases, i, e, the gases which produce a great eruption



eruption and which have been the cause of the formation of volcanoes, consist mainly of the same ingredients as atmospheric air. Under the above mentioned circumstances I have found only a slight feeling of oppression which may be due to the high temperature or possibly to a slight deficiency in the proportion of oxygen due to oxydations during the subterranean travel of the gases.

These two eruptions prove that Stromboli shares in the general increase of activity of the Italian volcanoes.

Mt. Etna is preparing for a great eruption.

Respectfully submitted,

(signed) FRANK A. PERRET.

Volcanologist  
to the  
Volcanic Research Society of  
Springfield, Mass.

Naples, Italy,  
October 26, 1912.

*(Only one set of photos procurable)  
H.H.H.*

APPENDIX -- DATA OF THE ERUPTIONS 1907 and 1912.

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1. The ash of 1907 was acid, that of 1912 alkaline, both noxious to green vegetation.
2. The paroxysmal crises of both eruptions corresponded with the luni-solar phases, to which Stromboli is very sensitive.
3. The ash emission of the 1912 eruption was accompanied by strong electrical manifestations, the volcanic lightnings being vivid and almost incessant.
4. The products of the fumaroles of this eruption, collected by the writer and analysed by Dr. Henze, of the Naples Aquarium, consist principally of Al., Fe., and Mg. combined with  $H_2SO_4$ , and HCl. Their gaseous emanation, as tested on the spot, was chiefly  $SO_2$  and a trace of  $H_2S$ .
5. The eruption months are six in number and have been designated by the writer with the letters A. to F. inclusive.
6. The eruption proper lasted from July 22, to August 14, 1912.
7. The crater of 1907 was 200 M in diameter, very deep, and the throat of the volcano was left quite free permitting the gases to escape quite continuously after the eruption.
8. The eruption of 1912 enlarged the former crater to 300 M. and left it partly filled with collapsed cone-material. This tends to confine the gases until they break through at intervals and form an ashcloud giving the impression of a greater activity than really exists.
9. The paroxysmal gases, as at Vesuvius in 1906, had approximately the composition of atmospheric air.

(signed) FRANK A. PERRET.



AMERICAN CONSULATE.

Naples, Italy, November 26, 1912.

SUBJECT: REPORTING THE RECENT GREAT ERUPTION OF THE  
VOLCANO STROMBOLI.

THE HONORABLE  
THE SECRETARY OF STATE  
WASHINGTON.

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Mr. Perret is an American Citizen from the State of New York, and has resided in Naples for several years making a special study of the eruptions of the volcanoes "Vesuvius" "Etna" and "Stromboli" and is in a position to write as an authority on this important subject.

He has not only written the report at my request but has furnished me with seventeen photographs illustrating the event taken by himself, and three pamphlets

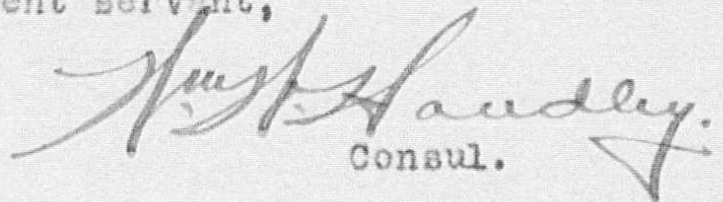
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enclosures Nos. 1 to 3) treating of the subject, all of which I hope will be of interest both to the Department and our scientific societies who are interested in these remarkable volcanic eruptions.

I have the honor to be, Sir,

Your obedient servant,

  
Consul.

Enclosures:

- No. 1.--Bulletin of Brooklyn Institute of Arts and Sciences.
- No. 2.--Volcanic Vortex Rings, etc.
- No. 3.--The Flashing Arcs.
- No. 4.--Report in Duplicate.



44-10 Krath, Bureau  
AUG 1 1947  
FILE - C. E. 2

June 25 1917.

INDEX BUREAU  
865-9242/2

File 392.42

THE ERUPTION OF MOUNT ETNA JUNE 24 1917.

American Consul  
Catania Italy

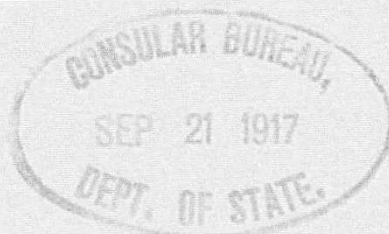
*Roberton Honey*  
June 25 1917.

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Mount Etna broke into unusual volcanic action yesterday evening at about 10.30 p.m. (true local time, 9.30 p.m.). The north-eastern crater, which was formed in 1911, ejected reddish smoke and incandescent lapilli for about thirty minutes. Spirts of flame continued at intervals for several hours after the ejection of solid matter ceased. A similar phenomenon occurred in 1900 from the central crater. The north-eastern crater is about 10,000 feet above sea level; the highest point of the volcano is about 10,750 feet. The matter ejected reached a maximum height of about 1,000 feet above the crater; part of it fell back into the crater and part fell upon the slopes of the volcano. There was a light wind from the west during the eruption; no seismic disturbance accompanied the phenomenon and there was no damage to life or property.

File 892.42





17 June  
21 July 1917  
A. H. H. W. O.

ERUPTIONS OF STROMBOLI DURING JULY 1917.

American Consul  
Catania Italy

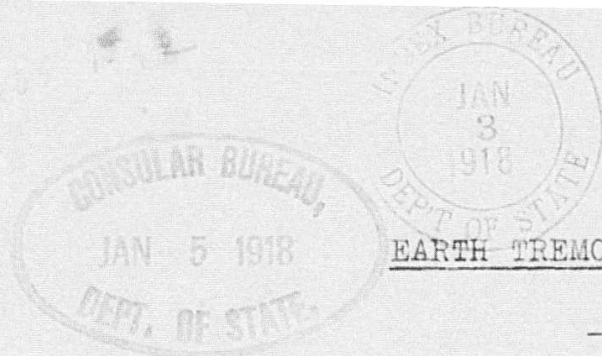
Robertson Hovey  
August 18 1917

Activity of the volcano Stromboli was very marked during July 1917. There were emitted white smoke and scorise during practically the entire month. On several days three of the craters were in eruption at the same time and noisy explosions accompanied the erupted matter. At 6 a.m. July 26th, there began a flow of lava which lasted until ~~until~~ 8 a.m. the following day. The stream poured down the side of the volcano and reached the sea.

865.9242/3

INDEXED  
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SEP 28 1917

M. J. J. J.



EARTH TREMORS IN PROVINCE OF CATANIA.

American Consul  
Catania Italy

*Jan 21/18  
copy  
made  
at 1535*

*Robertson Hones.*

December 5 1917

*file*

The observatories of Acireale, Catania and Mineo note earth tremors on December 2 1917 at 4:50 P.M. The inhabitants of these places felt the shock.

On December 4 1917, a second and very brief shock was noted at 5:20 A.M. in Nicolosi; this was of the undulatory type.

No substantial damage resulted from either of the shocks.

The above named localities are all in the province of Catania and are within a short radius from Mount Etna.

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file 848

FILED  
JAN 8 1918



EARTH TREMORS IN PROVINCE OF CATANIA.

American Consul  
Catania Italy

*Robert Thornton*  
December 5 1917

The observatories of Acireale, Catania and Mineo note earth tremors on December 2 1917 at 4:50 P.M. The inhabitants of these places felt the shock.

On December 4 1917, a second and very brief shock was noted at 5:20 A.M. in Nicolosi; this was of the undulatory type.

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The above named localities are all in the province of Catania and are within a short radius from Mount Etna.

NO. 1609.

AMERICAN CONSULATE GENERAL,

GENOA, ITALY.

September 23, 1924.

SUBJECT: EARTHQUAKE SHOCKS AT GENOA.

THE HONORABLE

THE SECRETARY OF STATE,

WASHINGTON.

SIR:

I have the honor to report that, although Genoa is classified as outside the earthquake zone in Italy, it experienced a series of six distinct shocks on Sunday, September 21st, the first being at 2.30 p.m., and the most severe at 9.15 p.m., the latter lasting nearly ten seconds and accompanied by a loud rumbling. The intervening shocks were at 2.53 p.m., 3.03 p.m., 3.45 and 8.45 p.m. A seventh shock was felt at 5 a.m. September 22nd.

All the shocks are described as undulatory and extended in less degree along the Italian Riviera for about 20 miles on either side of Genoa, and even to points in the interior where the country is mountainous. An interesting point is that the center of the movement was undoubtedly in the vicinity of the city of Genoa, where the shocks were most severe. Great excitement was caused among the population, particularly following the severe shock at 9.15 p.m., when hundreds of persons attending the theatres and moving picture establishments left in a state of panic. Many persons remained all

night

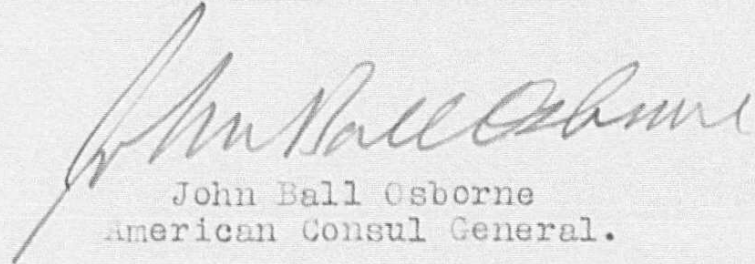


night in the public parks and piazzas.

In this connection I have the honor to report that Captain C. J. O'Brien, Master of the s.s. 'PRESIDENT POLK' of the Dollar Steamship Line has informed me that on the evening of September 21st, between 9 and 10 o'clock, when his vessel was at a point about ten miles off the coast opposite Rome, he was surprised to observe the sea at a point near his vessel agitated as if boiling. After arriving at Genoa he learned of the earthquake and immediately attributed to it the phenomenon mentioned.

I have the honor to be, Sir,

Your obedient servant,



John Ball Osborne  
American Consul General.

JBO.AMG.  
000.

Central File: Decimal File 865.9242, Internal Affairs Of States, Science. Philosophy., Geology., Italy, Seismology., Oct. 25, 1911 - Sept. 23, 1924. October 25, 1911 - September 23, 1924. MS European Colonialism in the Early 20th Century. National Archives (United States). Archives Unbound, [link.gale.com/apps/doc/FSC5109729274/FGDSC?u=3Domni&sid=bookmark-GDSC](https://link.gale.com/apps/doc/FSC5109729274/FGDSC?u=3Domni&sid=bookmark-GDSC). Accessed 18 June 2025.